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CLAIMS

1. An automated detection apparatus for testing biological samples from a plurality of individual animals, the apparatus comprising:
 - 5 a detection unit having a sample inlet and a sample outlet, and a biosensitive sensor comprising a biosensitive medium for indicating the concentration of at least one biological compound within each biological sample, wherein the biosensitive medium is provided with at least one active biosensor region; and
 - 10 means for exposing each region, when in use, to a biological sample thereby detecting the concentration of said biological compound.
2. The apparatus as claimed in claim 1, wherein the biosensitive medium indicates the concentration of said at least one biological compound in accordance with a solid based immunoassay technique.
- 15 3. The apparatus as claimed in claim 1 or 2, wherein the biosensitive medium indicates the concentration of progesterone.
4. The apparatus as claimed in claims 1 to 3, wherein the detection unit includes a plurality of electrodes, which introduce an electrical potential across at least a portion of the sample under test and wherein the concentration of said at least one biological compound is detected electrochemically.
- 20 5. The apparatus as claimed in claim 4, wherein the plurality of electrodes includes a working electrode and the sensor is electrically coupled to a working electrode.
- 25 6. The apparatus as claimed in claim 4, wherein the plurality of electrodes further includes a reference electrode and wherein the concentration of said at least one biological compound is detected by measuring the current flowing in a circuit including the reference electrode, the sample under test and the first electrode.
- 30 7. The apparatus as claimed in claim 6, wherein the inlet and outlet ports are formed of a conductive material and wherein the outlet port is electrically coupled to the reference electrode as an auxiliary electrode.
- 35 8. The apparatus as claimed in claim 1, wherein the sensor is a biosensor card and wherein the means for exposing each region is a card mounting arrangement.

9. The apparatus as claimed in claim 2, wherein the sample inlet and outlet ports are pipes.

5 10. The apparatus as claimed in claim 1, wherein the sensor is a biosensor film and wherein the means for exposing each region comprises a film mounting arrangement.

11. The apparatus as claimed in claim 1, wherein the biosensor film is provided with sprocket perforations for engaging a sprocket wheel, which in use drives the film.

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12. The apparatus as claimed in claim 3, wherein the means for exposing each region further comprises: a plurality of reagent reservoirs, each containing a testing reagent, and a plurality of fluid channels for conveying said reagents into said detection unit.

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13. The apparatus as claimed in claims 3 or 4, wherein the means for exposing each region is disposed in a cassette housing.

14. The apparatus of any preceding claims, further comprising means for controlling
20 the handling of the sample to ensure disposal or storage after testing.

15. A biosensor cassette for testing biological samples from a plurality of individual animals, the cassette comprising:

a housing; and

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a biosensor film;

wherein the film is provided within the housing, the film in use being capable of selective exposure to biological samples in a detection chamber thereby facilitating the detection of concentrations of a biological compound within said samples.

30 16. The cassette as claimed in claim 15, wherein the cassette further comprises at least one reagent reservoir for storing reagents, wherein said at least one reservoir is disposed within the housing and wherein the reagents are supplied to the detection chamber.

35 17. The cassette as claimed in claims 14 or 15, wherein the biosensor film is provided with sprocket perforations for engaging a sprocket wheel, which in use drives the film.

18. The cassette as claimed in any one of claims 15, 16 or 17, further comprising an identifier tag for storing identification data.
- 5 19. The cassette as claimed in claim 18, wherein data stored on the tag includes a batch code, the date of manufacture and reel usage information.
- 10 20. A milking apparatus incorporating a detection apparatus as claimed in any one of claims 1 to 14, wherein the biological samples are milk samples and wherein the automatic apparatus comprises milking device, a detection apparatus recess for receiving said detection apparatus and a testing controller for controlling the testing of milk samples.
- 15 21. The milking apparatus as claimed in claim 19, wherein the detection apparatus is a biosensor cassette and wherein the recess receives the cassette, the automatic milking apparatus further comprising a drive mechanism, wherein the cassette recess is provided with at least one capstan for engaging with a spool provided in the cassette and for controllably driving the biosensor film past the milk sample, wherein the drive mechanism drives said at least one capstan, and thereby advances the film, under the control of the testing controller.
- 20 22. The milking apparatus as claimed in claims 20 or 21, further comprising a tag interface for allowing data stored on the identification tag to be read and edited.
- 25 23. An automated detection apparatus as herein before described with reference to the accompanying drawings.